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ABSTRACT

A study examined a unique workplace literacy program designed for college preparation. Factors related to retention were studied in a group of paraprofessional health care workers who were attending the program as a step toward career advancement. The 153 participants were mainly women of minority backgrounds who spoke English fluently but not necessarily as a first language and had considerable family responsibilities. Many of the participants had previously obtained high school equivalencies through union programs. Student characteristics, perceptions of the program, reasons for leaving prior to completion, and literacy gains were studied as a function of length of time in the program. Included in this study were two groups often overlooked in the research literature: nonattenders (those accepted to a program who never attend, n=28) and leavers (those who spend 12 or fewer hours in instruction before leaving, n=26). Length of time in the program was clearly associated with literacy gain. The 47 completers had higher literacy scores at various points during the program than groups who stayed for shorter amounts of time. Completers also had stronger English language backgrounds. Consideration of the combined effect of literacy gain, background characteristics, and perceptions of the program led to the conclusion that educational and practical concerns seemed to work together to affect decisions whether to stay or go. (22 references) (KC)

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Retention Patterns in an Adult Basic Education Program for Health Care Workers Preparing for College

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Abstract

This study looks at a rare type of program in adult basic education settings, a workplace literacy program whose purpose was college preparation. Factors related to retention were studied in a group of paraprofessional health care workers who were attending the program as step towards career advancement. Participants were mainly women of minority backgrounds who spoke English fluently but not necessarily as a first language, and had considerable family responsibilities. Many of the participants had previously obtained high school equivalencies through union programs. Student characteristics, perceptions of the program, reasons for leaving prior to completion, and literacy gains were studied as a function of length of time in the program. Included in this study were two groups often overlooked in the research literature: non-attenders (those accepted to a program who never attend) and leavers (those who spend 12 or fewer hours in instruction before leaving). Length of time in the program was clearly associated with literacy gain. The completers had higher literacy scores at various points during the program than groups who stayed for shorter amounts of time. The combined effect of literacy gain, background characteristics, and perceptions of the program is discussed.

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Retention Patterns in an Adult Basic Education Program for Health Care Workers Preparing for College

Introduction

Retention rate is often considered an index of program quality in adult education. When students leave programs before completion, it may be because they do not feel the programs are meeting their needs, although, of course, students may also leave for reasons unconnected with program quality. Since adult basic education programs[1] often have difficulty in retaining students (Anderson & Darkenwald, 1979; Harman, 1987), it is important to study the reasons for students' non-completion of these programs. Relatively objective evidence for learning, such as changes in test scores over time, needs to be studied, as well as subjective data such as students' opinions of the instruction.

Studies of reasons for dropout have investigated various types of adult basic education programs, including basic literacy, English as a Second Language, and high school completion programs (e.g., Cramer, 1982; McGrail, 1984; Garrison, 1985; Jackson-Mayer, Howie & Lanvermeier, 1987; Bosma, 1988; Hayes, 1988; Knibbe & Dusewicz, 1990; Pugsley, 1991). A type of program that has not been reported in the literature, probably because of its rarity, serves adults who have obtained secondary credentials (a General Education Development or a regular high school diploma) but continue to attend adult basic education courses for further skills improvement. While college remedial programs often serve this population, adult basic education rarely does.

The current study examines reasons for non-completion in a basic education program in which paraprofessional health care workers improved literacy skills to prepare for college in order to advance to professional careers. Specifically, this investigation looks at student characteristics, literacy gains, perceptions of instruction, and expressed reasons for non-completion as a function of length of time in instruction.

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The College Preparation Program

Program Overview

The students attended a federally funded workplace literacy demonstration program conducted by three New York City labor unions. This program was designed for members who wanted to improve their reading, writing and math skills in order to prepare for Associates level college programs in nursing and other health care areas. The program had a dual goal of preparing the students for college placement tests in reading, writing and math, and for the literacy demands of college course work in health areas. Perin (1992) describes the program and major outcomes.

Educational Services

Instruction and educational counseling were given over an eight-month period. Classes were given six hours per week for 28 weeks, for a total of 168 hours, divided equally between reading-writing and math. Counseling was given on an individual and small group basis, by appointment, before or after class, and also included workshops on topics related to college preparation, which were given to whole classes.

The services were provided in union headquarters and a union-supported educational center. Participants attended during non-working hours; classes were scheduled to be compatible with work shifts. While the participants lived and worked in several boroughs of New York City, it was necessary to give all the classes in one borough, so that many participants had to travel a considerable distance in order to attend class.

Curriculum

Curricula for reading-writing (Perin & Kalash, 1991) and math (Perin & Gallin, 1991) were developed on the basis of a literacy task analysis. The literacy instruction was contextualized in anatomy and physiology, introductory chemistry, medical terminology, and familiar health care job practices, and teaching units were keyed to college textbooks in these areas. This approach was based on the functional context literacy method

(Sticht, Armstrong, Hickey, & Caylor, 1987; Philippi, 1988) where literacy skills are taught using specific job content. Mikulecky & D'Adamo-Weinstein (1991) have claimed that effective adult literacy programs tend to use this approach.

Instruction

The classes were taught by adult basic education and college remedial instructors. A combination of collaborative (Damon, 1984; Slavin, Sharan, Kagan, Hertz-Lazarowitz, Webb & Schmuck, 1985) and traditional learning methods were used. Thus, teachers alternated between collective group assignments, and recitation and independent work.

Selection of Participants

In accordance with the philosophy of the union education program, applicants were minimally screened. As long as they presented a high school diploma or GED, they were accepted on the basis of expressed motivation to attend, and only those considered to lack a basic minimum of writing skills were not accepted. This was virtually an open admissions approach.

Students were screened by means of an essay assignment that called for discussion of an ethical dilemma arising in health care jobs. The essays were scored on a six-point holistic scale used by the City University of New York to score writing placement tests (CUNY Office of Academic Affairs, 1986). To be exempted from writing remedial requirements, CUNY requires that college entrants receive a score of "4" from each of two independent judges. Applicants to the current program who scored "2" and above (N=153) were accepted. Seventy-five percent of those accepted had a score of "2," 21% had a "3" and 5% had a "4." Thus, writing skills were poor, despite the fact that entrants possessed secondary education qualifications.

Characteristics of Participants

Background information was obtained through methods described below. Participants were nurses aides (48%), clerical workers (17%), home health attendants (12%) and others who worked in hospitals and long term care facilities.

Over 95% of the participants were women. All were of African or Latino ancestry. Ages ranged from 22 to 58 years, with 34% aged 31-40, and 42% aged 41-50. All spoke English fluently. Other participant characteristics are as follows:

First language: 69% English, 17% Spanish, 10% French or Creole

Highest grade attended: 67% twelfth grade; 12% eleventh grade; 17% tenth grade, 5% ninth grade

Secondary credential: 54% high school equivalency (General Education Diploma, GED, mostly obtained through union programs); 30% regular high school diploma; 17% both GED and regular diploma)

Country of high school: 52% U.S., 48% abroad

Single head of household: 71%

Family responsibilities: 85% had dependents for whom they were directly responsible; 78% responsible for between one and three children, older relatives and others.

Data Collection

Student Characteristics, Perceptions of the Program, and Reasons for Leaving. The information on student background characteristics, perceptions of the program and reasons for leaving is based on registration forms, three surveys completed during and after the program, and information provided by the project counselor. The surveys contained questions which were answered by checking off given options or writing in answers. (Copies of the surveys may be obtained by writing to the first author.)

The registration forms were filled out on the first day of class, two of the information surveys were sent to students' homes during the program period, and the third survey was conducted in a telephone follow up interview by the counselor. Additional information reported by the counselor was based on information gleaned in the course of counseling.

Background variables were: age; first language; single head

of household; family responsibilities (number of children, older relatives and others dependent on student); highest grade completed, country of high school; type of secondary credential (regular high school diploma or high school equivalency); previous college experience; current job; and job objective.

Survey items concerning perceptions of instruction were: geographic location convenient; class schedule convenient; family supported attendance; family inconvenienced by attendance; reading-writing class right level; math class right level; health-related materials useful; felt encouraged after first test; found on-going testing helpful; and attained educational goal.

Survey items relating to reasons for leaving the program before completion were: geographic location; class schedule; family problems; personal health; did not like classwork; pace of instruction too slow; pace of instruction too fast.

Literacy Gains. Literacy gains were measured in three ways. First, pre-post changes on practice tests in reading, writing and math were examined. These tests were simulations of City University of New York college placement exams (CUNY Office of Academic Affairs, 1986), which are used to determine exemption from or level of placement in basic skills remediation.

Sets of reading, writing and math tests were given at equal intervals during the eight-month training, i.e., every seven weeks of instruction. Besides being used to assess literacy growth, the tests were part of the students' educational experience, since they were practicing skills they would need when they took the actual college tests.

The reading tests consisted of 40 or 45 one-paragraph passages followed by multiple choice comprehension questions. Thirty minutes was given for the test. The writing tests required the writing of an essay in a 50-minute period on a question calling for agreement or disagreement with a given statement. (Essay questions are available from the first author.) As with the screening measure described above, the essays were scored

holistically, using a six-point scale developed by CUNY. The math tests consisted of 20 to 30 multiple choice arithmetic questions, to be answered within 35 or 40 minutes. (The math tests may be found in Perin & Gallin, 1991).

Since the practice tests were designed to prepare students for the CUNY placement tests, which are generic in content, the content of the practice tests also generic, i.e., not specifically health related. Apart from the content, the tests varied in their relation to the skills taught. While the skills tapped by the writing and math tests were covered extensively in the curriculum, some of the skills assessed by the reading tests were covered in less depth. In particular, these tests called for the ability to read unrelated paragraphs that many people would not find very interesting or relevant, and answer multiple choice questions related to them. The speed criterion added to test difficulty for many of the students.

In the second method of assessing literacy gain, college remedial placement in CUNY community colleges was estimated on the basis of the pre and post practice test scores. A typical CUNY community college provides three levels of reading remedial class (low, middle, and upper), while two levels of remediation are provided for writing and math (lower and upper). The colleges apply cut-offs to reading, writing, and math placement test scores to determine whether a student is exempt from remediation, and, if not, what level of remedial class is needed in each basic skills area.

For the current group of students preparing for college, changes in remedial status from pre to post provide an index of the extent of literacy gain. Based on information given by a community college to the project, the cut-offs shown in Table 1 were used to estimate remedial placement. The reading and math scores are based on percent correct, while the writing scores are on a six-point holistic scale, described above.

Table 1. Cut-Off Scores for Estimating Community College Remedial Placement

	Level of Remedial Class			
	Low	Middle	Upper	Exempt
Reading	0-40%	41-55%	56-66%	67%+
Writing	2	-	3	4+
Math	0-40%	-	41-74%	75%+

In the third method of literacy assessment, the teachers rated each student's abilities, based on classroom observations. The ratings were made at three equally spaced points during the eight-month instructional period. Reading comprehension, writing, study skills, math concepts, math calculations, and critical thinking skills were rated separately, using a five-point scale that ranged from poor to excellent mastery of the skills being taught. A reading-writing and a math score were calculated for each student by taking a mean of the ratings for the period in each area.

The first and last ratings of reading comprehension, writing, and math were correlated with the first and last test scores to examine the relationship between the practice test scores and teacher ratings. As shown in Table 2, the measures were positively, significantly correlated, with the exception of the last ratings and test scores for math, which only approached significance.

Table 2. Correlations between First and Last Teacher Ratings and Test Scores

	First			Last		
	r	N	p	r	N	p
Reading Comprehension	.60	85	<.001	.48	43	<.001
Writing	.53	85	<.000	.45	43	<.002
Math	.25	81	<.03	.28	43	<.07

Participation and Retention

Participation and retention rates were as follows:

Applied to the program: N=176
Accepted to program: N=153
Non-Attenders (did not begin program): N=28
Began program: N=125
Leavers (left after 1 or 2 classes, maximum 12 hours): N=26
Total Attenders (excluding Leavers): N=99
Short Stayers (approx. 7 weeks, or 42 hours): N=27
Medium Stayers (approx. 14 weeks, or 84 hours): N=13
Long Stayers (approx. 21 weeks, or 126 hours): N=12
Completers (approx. 28 weeks, or 168 hours): N=47
Completion Rate (Completers as percent of Attenders): 47%
Combined Long Stay + Completion Rate: 60%

The calculation of the number of "Attenders" was based on standard practice in adult basic education where only students who attend for 12 or more hours of instruction are considered program entrants (Pugsley, 1991). Since six hours of instruction were given each week, individuals who left during the first two weeks were not considered Attenders. The retention rate of 47% is based on the 99 participants who attended the program for more than two weeks.

Definition of Groups

Background characteristics, literacy gains, perceptions of instruction, and expressed reasons for non-completion were compared across groups, defined by length of participation.

Literacy gains were compared across the "Completer," "Long Stay," and "Medium Stay" groups, as described above. For the group comparisons of background characteristics, perceptions of instruction, and reasons for leaving, the Long Stay, Medium Stay, and Short Stay groups were combined to form a "Non-Completer" group. This was done because the cell sizes for the Medium and Short Stay groups were small for some questions. Therefore, the

groups compared were Completer, Non-Completer, Leaver, and Non-Attender.

Data Analysis

Chi-square analyses and one-way analyses of variance were used to compare groups on background characteristics, perceptions of instruction, and reasons for non-completion. Literacy gains were examined both within and between groups using t-tests and one-way analyses of variance.

A readability analysis (Fry, 1972) indicated that the reading practice tests varied in readability. The first and fourth tests were at the eleventh grade level, the second test was at the ninth grade level and the third test was at the seventh grade level. The reading scores (percent correct) were adjusted by multiplying the first and fourth test scores by eleven, the second test scores by nine, and the third test scores by seven. Thus, the reading scores reported in the Findings section below are in triple digits. The cut-off scores for estimating reading remedial placement, shown as simple percentages in the section on Data Collection, above, were weighted in the same way.

Findings: Background Characteristics

There was a significant group difference in previous college experience, as shown below. In all tables, N refers to the number of respondents.

Previous College Experience

Group	N	%
Completer	42	33
Non-Completer	37	35
Leaver	18	75
Non-Attender	16	50

Chi-square=9.59, df=3, p<.02

This analysis shows that the odds of a Leaver having

previous college experience was 3:1, whereas the odds were lower for the other groups.

There were no other significant group differences in the other background characteristics, shown below.

English as First Language

Group	N	%
Completer	47	79
Non-Completer	53	62
Leaver	21	81
Non-Attender	16	57

Single Head of Household

Group	N	%
Completer	32	66
Non-Completer	25	64
Leaver	12	92
Non-Attender	13	76

Family Responsibilities (Number of Children, Older Relatives, and Others Dependent on Student)

Group	N	x	SD
Completer	32	1.72	1.28
Non-Completer	24	2.28	2.18
Leaver	12	1.33	1.37
Non-Attender	13	2.15	1.34

Highest Grade Completed

Group	N	9th	10th	11th	12th
		%	%	%	%
Completer	32	9	21	13	56
Non-Completer	23	0	9	17	74
Leaver	11	0	9	9	82
Non-Attender	11	8	25	0	67

Country of High School: U.S. or Abroad

Group	N	U.S. %	Abroad %
Completer	30	50	50
Non-Completer	24	50	50
Leaver	13	77	23
Non-Attender	12	33	67

Type of Secondary Credential

Group	N	% Regular diploma	% GED
Completer	29	31	69
Non-Completer	21	38	62
Leaver	16	50	50
Non-Attender	12	25	75

It is interesting to note that some individuals (not included in this analysis) had obtained both types of secondary credential: N=6 Completers; N=5 Non-Completers; N=2 Leavers; and N=3 Non-Attenders.

Current Job: Nurses Aide

Group	N	%
Completer	47	40
Non-Completer	53	36
Leaver	26	54
Non-Attender	26	54

Current Job: Home Health Attendant

Group	N	%
Completer	47	11
Non-Completer	53	13
Leaver	26	12
Non-Attender	26	8

Job Objective: Registered Nurse

Group	N	%
Completer	33	61
Non-Completer	31	45
Leaver	12	33
Non-Attender	8	63

Job Objective: Health Specialization

Group	N	%
Completer	33	33
Non-Completer	31	42
Leaver	12	13
Non-Attender	8	33

Health specializations include physical therapy assistant, occupational therapy assistant, respiratory therapist, radiology technologist, medical lab technician, and medical records technologist.

Findings: Perceptions of Instruction

When the Completer, Non-Completer and Leaver groups were compared on perceptions of the program, three significant differences emerged, regarding level of the math class, usefulness of the health related materials, and attainment of educational goal, as follows.

Math Class Considered Right Level

Group	N	%
Completer	32	97
Non-Completer	25	88
Leaver	9	67

Chi-square=6.86, df=2, $p<.03$

Health-Related Materials Useful

Group	N	%
Completer	32	75
Non-Completer	24	100
Leaver	10	100

Chi-square=9.67, df=2, p<.008

Attained Educational Goal

Group	N	%
Completer	30	90
Non-Completer	25	76
Leaver	9	22

Chi-square=16.98, df=2, p<.000

Verbatim statements of educational goals included: improve basic skills, prepare for college, pass college entrance exam, learn English, learn nursing concepts, prepare for Licensed Practical Nurse program, increase confidence and get encouragement, find out where weak points are and improve them, prepare for a brighter future, fill time and gain better paying job.

The odds of the Completers and Non-Completers considering the math class the right level were approximately 11:1 and 7:1, respectively. In contrast, the Leavers thought that the math class was the right level at a rate of only 2:1. A smaller proportion of the Completers than the other groups thought the health related materials were useful. A much smaller proportion of Leavers than Completers and Non-Completers stated that they had attained their educational goals, which is not surprising since the former attended the program for 12 hours or less.

Other group differences in perceptions of the program, shown below, were not significant.

Geographic Location Convenient

Group	N	%
Completer	32	88
Non-Completer	25	64
Leaver	12	75

Class Schedule Convenient

Group	N	%
Completer	32	90
Non-Completer	25	80
Leaver	12	91

Family Supported Attendance

Group	N	%
Completer	30	90
Non-Completer	23	87
Leaver	9	78

Family Inconvenienced by Attendance

Group	N	%
Completer	30	17
Non-Completer	24	21
Leaver	10	50

Reading-Writing Class Considered Right Level

Group	N	%
Completer	31	74
Non-Completer	24	75
Leaver	10	80

Felt Encouragaged After First Test

Group	N	%
Completer	27	67
Non-Completer	20	70

Leavers and Non-Completers who left before the first test

were not asked this question.

Found On-Going Testing Helpful

Group	N	Percent
Completer	32	100
Non-Completer	24	100

Again, Leavers and Non-Completers who left before having any test experiences were not asked this question.

Findings: Reasons for Non-Completion

Thirty-four Non-Completers and Leavers responded to questions about their reasons for leaving the program. Reasons given by the whole sample were as follows (in a few cases, more than one reason was mentioned):

Reasons for Leaving Before Completion

Reason	N	%
Geographic location	3	9
Class schedule	2	6
Family problems	13	38
Personal health	7	21
Classwork	3	9
Pace too slow	1	3
Pace too fast	12	34

The Non-Completer and Leaver groups differed regarding family problems, as shown below.

Family Problems

Group	N	%
Non-Completer	21	52
Leaver	13	15

Chi-square=4.65, df=1, p<.03

The other group differences, as shown below, did not differ

significantly.

Geographic Location

Group	N	%
Non-Completer	21	14
Leaver	13	0

Class Schedule Inconvenient

Group	N	%
Non-Completer	21	5
Leaver	13	7

Personal Health

Group	N	%
Non-Completer	21	14
Leaver	13	31

Did Not Like Classwork

Group	N	%
Non-Completer	21	9
Leaver	13	7

Pace of Instruction Too Slow

Group	N	%
Non-Completer	21	4
Leaver	13	0

Pace of Instruction Too Fast

Group	N	%
Non-Completer	21	27
Leaver	13	46

Findings: Literacy Gains

Changes in literacy abilities, as measured by simulated college placement tests in reading, writing and math (referred to

as practice tests), estimated college remedial placement, and teacher ratings were compared for the Completer, Long Stay, and Medium Stay groups, as defined in the section on Participation and Retention above.

Comparison of Practice Test Scores Between Groups

Analysis of the first reading, writing and math practice tests (pre-tests), given seven weeks into the program, indicates that students did not differ across groups. Thus, they started with similar literacy skills. All students taking each test were included in the analysis. The group means are shown below. (See Data Analysis section above regarding weighting of reading scores.)

Scores on Reading Pre-Test

Group	N	x	SD
Completer	43	463.41	156.77
Long Stay	10	420.02	71.71
Medium Stay	10	427.35	197.13
Short Stay	24	409.04	147.62

Scores on Writing Pre-Test

Group	N	x	SD
Completer	43	2.49	.59
Long Stay	10	2.50	.71
Medium Stay	10	2.40	.52
Short Stay	24	2.38	.50

Scores on Math Pre-Test

Group	N	x	SD
Completer	43	64.42	12.64
Long Stay	10	58.00	13.98
Medium Stay	9	57.78	14.60
Short Stay	22	56.36	18.97

In between-group analyses of the other sets of tests, three

comparisons showed significant differences. On Reading Test 3, the Completers had higher scores than the Long Stay group ($t=2.49$, $df=51$, $p<.02$). On Math Test 2, there was a significant main effect of group ($F=3.55$, $df=2,59$, $p<.04$). Scheffe pairwise comparisons showed that the significance was due to the difference between the Completer and Medium Stay group, with the Completer group showing the higher score. On Math Test 3, the Completer group scored higher than the Long Stay group ($t=2.69$, $df=49$, $p<.01$.

Within-Group Gains

For each group, the post test was the last test taken. For Completers, this was the fourth set of tests, for the Long Stayers it was the third set, and for the Medium Stayers it was the second set. Students in each group who took both the pre and post tests were included in the analysis. Since the Short Stayers took only the first set of tests, it is not possible to estimate their literacy gains.

Reading Gains

Neither the Completer, Long Stay, nor Medium Stay groups showed significant reading gains from pre to post.

Writing Gains

Both the Completer and the Long Stay groups showed significant gains in writing from pre to post, as shown below. For the Medium Stay group, the change was not significant.

Pre and Post Scores on Practice Tests in Writing (6-Point Scale)

Group	N	Pre		Post		t	df	p
		x	SD	x	SD			
Completer	40	2.45	.55	3.5	.64	-12.02	39	<.000
Long Stay	12	2.5	.71	3.4	.52	-3.86	9	<.004
Med. Stay	8	2.5	.54	2.8	.46	-1.53	7	ns

Math Gains

The Completer group showed significant gains from pre to

post in math, but the Long and Medium Stay groups did not, as shown below.

Pre and Post Scores on Practice Tests in Math (Percent Correct)

Group	N	Pre		Post		t	df	p
		x	SD	x	SD			
Completer	43	64.42	12.64	82.55	12.02	-9.59	42	<.000
Long Stay	10	58.00	13.98	67.83	29.73	-1.14	9	ns
Med. Stay	8	60.00	13.89	65.63	16.35	-1.08	7	ns

Estimated College Remedial Placement

The pre and post reading, writing and math practice test scores for each student in the Completer, Long Stay and Medium Stay groups were used to estimate remedial placement, based on cut-offs used in CUNY community colleges (see page 6 above). As in examining literacy gains based on test scores, the pre tests were the first set of practice tests, which were administered seven weeks into the program. For each group, the post test was the last test taken. For Completers, this was the fourth set of tests, for the Long Stayers it was the third set, and for the Medium Stayers it was the second set. All students who took each test are included in this analysis. Estimated remedial placements are shown below.

Estimated Placement in Community College Remedial Classes for Reading, Based on Pre and Post Practice Test Scores

Group	Pre					Post				
	N	Low	Mid	Upper	Exempt	N	Low	Mid	Upper	Exempt
		%	%	%	%		%	%	%	%
Completer	43	48	40	5	7	45	48	47	2	2
Long Stay	10	60	40	0	0	12	42	25	33	0
Med. Stay	10	90	10	0	0	13	54	31	8	8

Estimated Placement in Community College Remedial Classes for Writing, Based on Pre and Post Practice Test Scores

Group	Pre				Post			
	N	Low %	Upper %	Exempt %	N	Low %	Upper %	Exempt %
Completer	43	56	40	5	45	0	56	44
Long Stay	10	60	30	10	11	0	64	36
Med. Stay	10	60	40	0	11	45	55	0

Estimated Placement in Community College Remedial Classes for Math, Based on Pre and Post Practice Test Scores

Group	Pre				Post			
	N	Low %	Upper %	Exempt %	N	Low %	Upper %	Exempt %
Completer	43	2	21	77	45	0	17	83
Long Stay	9	11	88	0	12	17	25	58
Med. Stay	9	22	56	22	11	18	45	36

Pre-Post Changes on Teacher Ratings

Gain in literacy skills was also examined by comparing pre and post scores on teacher ratings. As described in the Data Collection section above, these ratings were made three times during the program period. The pre scores were the first set of ratings. For each group, the post scores were the last ratings made before the student left the program. For Completers, this was the third set of ratings, and for the Long and Medium Stayers it was the second set. Students in each group for whom both pre and post ratings were given were included in the analysis.

As shown in the following tables, the Completers showed significant gain in Reading-Writing, and the Medium Stay group showed significant gain in math.

Pre and Post Scores on Teacher Ratings: Reading-Writing (5-point scale)

Group	N	Pre		Post		t	df	p
		x	SD	x	SD			
Completer	44	2.89	0.88	3.39	1.07	-5.71	43	<.000
Long Stay	9	2.38	0.40	2.64	0.53	-1.66	8	ns
Med. Stay	9	2.83	0.84	2.44	1.02	-1.10	8	ns

Pre and Post Scores on Teacher Ratings: Math (5-point scale)

Group	N	Pre		Post		t	df	p
		x	SD	x	SD			
Completer	44	3.14	0.68	3.15	1.07	-0.06	43	ns
Long Stay	10	2.83	0.55	2.60	0.73	-1.35	9	ns
Med. Stay	7	3.43	0.53	2.86	0.74	4.07	6	<.007

Comparison of Teacher Ratings Between Groups

Between-group comparions were made of ratings given at each rating period. There were no significant group differences at any of the rating period.

Discussion of Findings

Background Characteristics

The one significant group difference regarding background characteristics concerned the previous college experience of the Leavers, students who attended 12 hours or less. It is possible that individuals in this group entered the program thinking that it was a college program, and left when they realized that it was not. Although the recruitment material stated that the program was a preparation for college given by the unions, some of the students' questions and comments at the beginning of the program concerning the fact that it did not bear college credit suggested that this information was not clear to everyone.

Even though the Leavers did not differ from the other groups in literacy skills on entry, the fact that many in this group

were single heads of household (where the incidence for the other groups was somewhat lower) suggests that they may have found it difficult to give priority in their busy lives to courses that were not credit bearing.

Because there is little research in the literature on this type of program, it is important to note some of the major differences in the group data, even where not significant. The Completer and Leaver groups contained more speakers of English as a first language than did the other groups. The Leaver group contained the highest proportion of individuals who had attended twelfth grade, a finding that is not surprising, given that this group tended to have college experience.

While the difference is not significant, it is interesting that 79% of the Completers compared with 62% of the Non-Completers spoke English as a first language. While all students were fluent in spoken English, having English as a first language may have facilitated literacy development in the Completer group, which may in turn have influenced the decision to stay until completion.

The Non-Attender group, individuals who were accepted but never attended, contained the smallest proportion of individuals who spoke English as a first language, the largest proportion who had attended a high school abroad, and the largest proportion who held GEDs rather than regular high school diplomas. Of the attenders, the Completer group contained the greatest proportion of individuals holding GEDs, and of speaking English as a first language.

Most participants had obtained their GEDs through the unions, and the college preparation program was their next educational step. It is possible that GED holders experienced positive effects of the recency of educational experience, including understanding how much commitment is needed, and being motivated to make that commitment. However, the problems associated with not speaking English as a first language may outweigh these benefits, especially through effects on literacy

processes.

Speaking a language other than English as a first language and having attended a high school outside of the U.S. may serve as "markers" for being at risk for failure in preparing for college, and future programs of this type should consider giving special support to applicants with these characeristics.

A greater proportion of the Completers than other groups had the job objective of Registered Nurse. Further investigation is needed to explain the relationship between job objective and tendency to complete the program.

Perceptions of Instruction

The Completers found the health-related materials useful significantly less often than did the other groups, a finding that warrants further investigation. Since the program was predicated on the usefulness of contextualized basic skills instruction, it is encouraging that the Completers who did not find the health related materials useful nevertheless persevered.

An issue that sometimes arises in adult basic education is a difference of opinion on the part of program staff and students regarding what education "should be like." Students may enter programs with expectations based on their early education, which, especially in the case of older populations, may have tended to involve generic material which was learned by rote. On this basis, students may expect more of the same, and may be perplexed when they encounter instruction involving materials that are not only contextualized but are discussed rather than memorized. The issue of whether and how both consumer expectations and the educational theory of program staff can be accommodated in instructional method needs further discussion in the adult basic education community.

The other two significant findings concerning perceptions of instruction related to opinion of the level of math instruction, and attainment of educational goal. In both cases, the Leavers differed from the other two groups. A further look at the raw data indicated that 30% of the Leavers surveyed found the math

instruction too difficult, which may have influenced their decision to leave. Regarding educational goal, it was said above that it is not surprising that the Leavers differed from the other two groups, since they attended for a very short time.

Although the difference was not significant, the Completers tended to find the geographic location and the class schedule convenient in more cases than did the Non-Completers. A smaller proportion of Non-Completers than Completers felt that they had attained their educational goal. It is possible that some of the Non-Completers left early because, given that they did not feel that they were accomplishing their educational goals, they no longer considered the inconvenience of the class location and schedule worth the effort. This contention is supported by the large body of research on goal setting that indicates that goals influence persistence and effort (Locke, Shaw, Saari & Latham, 1981).

Reasons Given for Non-Completion

Non-Completers mentioned family problems as a reason for leaving significantly more often than Leavers. Otherwise, the two groups did not differ significantly regarding reasons for leaving. However, there was a trend for Non-Completers to mention geographic location more often, and for the Leavers to say that they had left because the pace of instruction was too fast or because of health reasons.

Taking the significant findings and trends concerning background characteristics, perceptions of the program and reasons given for non-completion together, it appears that Non-Completers and Leavers were both similar and different in their reasons for leaving the program.

Family reasons appear to have affected both groups; the Non-Completer group mentioned family problems, and the Leavers tended to be single heads of household. Otherwise, the groups seemed to differ.

A proportion of non-Completers appear to have left because they did not feel they were accomplishing their educational

goals, compounded by inconvenience of geography and scheduling.

For the Leavers, the program may have been different from what was expected, i.e., not credit bearing. This reason may have been compounded by difficulty and speed of instruction. There appears to be confusion in Leavers' perceptions of their own ability; those who found the instruction too difficult or too fast would not be appropriate candidates for credit-bearing college courses.

The Leaver group is rarely included in statistical reporting or research studies in adult basic education. However, since this group may be quite large in adult basic education programs across the country, it should be included in future studies of retention.

Literacy Gains

Simulated College Placement Tests. There is a clear relationship between literacy gains and length of stay in the program, so that the more areas in which a group showed gain, the longer was the stay. The Completer group showed significant gains from pre to post in the writing and math areas. The Long Stay group showed gains in the writing area. The Medium Stay group showed no significant gains from pre to post in any area. These findings suggest that, where literacy gains are concerned, the Completers had the most reason to stay.

The findings of the between-group comparisons support a relationship between retention and literacy gain. By the second test period, there was a significant difference in the math area between the Completers and Medium Stayers; after this point, the latter group left the program. By the third test period, the Completers had higher scores in both reading and math than the Long Stayers; after this point, the Long Stayers left.

Although between-group comparisons were not significant, the Short Stay group showed the lowest scores on all pre-tests. This trend suggests that this group's decision to leave early was influenced by difficulties with the course work.

Estimated College Remedial Placement. Considerable gains are

indicated for writing and math. At the beginning of the program 5% of the Completers would have been exempt from college writing remediation while at the end of the program, 44% of this group are estimated to be exempt. At the beginning, 56% would have been placed in the lower level of writing remediation, while by the end, the same percentage would have been placed in the upper level. The Long Stay group also showed an appreciable shift from lower to upper level of writing remediation.

None of the Long Stayers would have been exempt from math requirements at the beginning of the program while 58% would have been exempt at the time they left.

It is interesting that 77% of the Completers were estimated to be exempt from math requirements and 88% of the Long Stayers were at the upper remedial level at the point of the pre-test (seven weeks into the program). On the basis of this finding, it is recommended that in future programs, individuals found to be performing at relatively high levels of math be given proportionally less math instruction and with a concommitant increase in reading and writing instruction.

Corroborating the findings for practice tests, there was little change in the reading area. In fact, the number of individuals exempt from reading requirements decreased slightly from pre to post.

Teacher Ratings. The patterns of within and between group findings for the teacher ratings were different from those for the practice tests. The teacher ratings were significantly higher from pre to post for reading-writing only for the Completer group, and for math only for the Medium Stay group. Since the ratings related not only to reading, writing and math skills per se, but to study skills and critical thinking, the ratings were broader in scope than the practice tests. For example, a student who frequently participated in class discussions would be rated highly in critical thinking even if reading and writing skills were poor.

It will be remembered that teacher ratings for individual

skills were combined to form a mean for each student (see Data Collection section, above). The individual skills of reading comprehension, writing and math correlated significantly with the practice test scores in reading, writing and math, as shown in the Data Analysis section, above. It will be necessary to reanalyze the teacher ratings, comparing pre and post ratings on the individual skills, in order to discover whether the pattern of pre-post changes as measured by teacher ratings is similar to that shown by the practice test scores.

Conclusions

A pattern emerges when the findings on background characteristics, perceptions of the program, and literacy gains are examined together.

Non-Attenders, individuals who applied to and were accepted by the program but never attended, tended more than the other groups to speak languages other than English as a native language, to have attended high school abroad, and to hold GEDs rather than regular high school diplomas.

Leavers, individuals who stayed in the program for twelve hours or less, tended more than the other groups to have had previous college experience, to have attended twelfth grade, and to be single heads of household. They may have had faulty perceptions of the purpose of the program, and left when realizing that it was not credit-bearing. They also tended to find the instruction too difficult and too fast. These individuals did not differ from the other groups in entry literacy skills; although they had previous college experience, they were underprepared for college study.

There was a distinct relationship between extent of literacy gain and amount of time spent in the program. Attenders who were doing well on the practice tests tended to stay longer, and to complete the program. These findings are corroborated by self-report data: some students whose scores were lower expressed the feeling that they had not accomplished their educational goals in

the program.

The Non-Completers had lower literacy scores during the program than the Completers, and tended to find the class schedule and location inconvenient more often than the Completers. Thus, educational and practical concerns seemed to work together to affect decisions whether to stay or go. Factored into this combination is first language: students who spoke English as a first language were more likely to complete the program.

Recommendations for Further Research on Retention

More research is needed on factors underlying retention in this type of adult basic education program. In particular, in a virtual open admissions program such as this, it is important to examine the effects of goal attainment, and to focus on how motivational factors influence outcomes. Future research on retention in this and other types of adult basic education programs should incorporate information on individuals who never attend, or attend for only a short time.

Note 1. There is some ambiguity in the term "adult basic education. In the present study, the term refers to the range of instruction in reading, writing, mathematics and English skills provided in non-college settings, e.g., local Boards of Education, labor organizations, voluntary literacy programs, and other community based organizations. Adult basic education services address literacy, English as a Second language, GED preparation, and, as in the present study, college preparation. Some or all of these services may be provided by colleges in "developmental skills" or "remedial" programs (Rossman, Fisk & Roehl, 1984).

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